

In the Claims

The following amendments are made with respect to the claims in the International application PCT/EP2004/013860.

This listing of claims will replace all prior versions and listings of claims in this application.

- 1 (currently amended). A polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser, ~~in particular Ala or Leu;~~

$X_2$  is Arg, Leu, Phe, Pro, or Ser, ~~in particular Arg or Ser;~~

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val, ~~in particular Gly, Leu, or Tyr;~~

$X_4$  is Gln, Phe, Ser, or Val, ~~in particular, Phe or Val;~~

$X_5$  is Arg, Asp, Glu, or Gln, ~~in particular Asp or Gln;~~

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val, ~~in particular Ala, Gln or Gly;~~

$X_7$  is Glu, Phe, Pro, or Val, ~~in particular Glu or Val;~~

$X_8$  is Ala or Cys, ~~in particular Cys;~~

$X_9$  is Asp, Cys, Gln, or His, ~~in particular Gln;~~

$X_{10}$  is Leu, Phe, or Val, ~~in particular Leu;~~ and

$X_{11}$  Gln, Phe, Pro, or Val, ~~in particular Pro,~~

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2, ~~preferably 1,~~ amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

2 (original). The polypeptide of claim 1, wherein:

X<sub>1</sub> is Ala or Leu;

X<sub>2</sub> is Arg or Ser;

X<sub>3</sub> is Gly, Leu, or Tyr

X<sub>4</sub> is Phe or Val;

X<sub>5</sub> is Asp or Gly;

X<sub>6</sub> is Ala, Gln, or Gly;

X<sub>7</sub> is Glu or Val;

X<sub>8</sub> is Cys;

X<sub>9</sub> is Gln;

X<sub>10</sub> is Leu; and

X<sub>11</sub> is Pro.

3 (original). The polypeptide of claim 1, wherein the amino acid sequence is as shown in SEQ ID NOs 1 to 15.

4 (currently amended). The polypeptide of ~~one of claims 1 to 3~~ claim 1, having a length of less than 100, ~~preferably 20 and most preferably 12~~ amino acids.

5 (currently amended). The polypeptide of ~~one of claims 1 to 4~~ claim 1, which comprises at least one amino acid sequence selected from the group consisting of ~~a cytokine, a chemokine, a growth factor, an adhesion molecule, an antibody light and/or heavy chain, a single chain antibody, a toxin, an enzyme, a receptor ligand, a lytic peptide, a membrane insertion sequence and a fluorescent protein or~~ cytokines, chemokines, growth factors, adhesion molecules, antibody light and/or heavy chains, single chain antibodies, toxins, enzymes, receptor ligands, lytic peptides, membrane insertion sequences, fluorescent proteins and fragments thereof.

6 (currently amended). The polypeptide of ~~one of claims 1 to 5~~ claim 1, which is attached to at least one chemical moiety.

- 7 (currently amended). The polypeptide of claim 6, wherein the chemical moiety is selected from the group consisting of ~~a spacer, a marker, a tag, a lipid, in particular a phospholipid, a drug, a capping group and a spacer~~ spacers, markers, tags, lipids, drugs, capping groups and spacers attached to a second chemical moiety.
- 8 (currently amended). The polypeptide of claim 7, wherein the spacer is selected from the group consisting of bifunctional polyethylenglycol and derivatives thereof[[,]]; oligopeptides comprising between 1 to 40 natural or synthetic amino acids[[,]]; 8-amino-3,6-dioxatanoic acid (doo), and (doo)<sub>n</sub>, with n=2-10.
- 9 (currently amended). The polypeptide of claim 7, wherein the marker is selected from the group consisting of ~~an electron dense molecule, a paramagnetic molecule, a superparamagnetic molecule, a radioactive molecule, a non-radioactive isotope, and a fluorescent molecule~~ electron dense molecules, paramagnetic molecules, superparamagnetic molecules, radioactive molecules, non-radioactive isotopes, and fluorescent molecules.
- 10 (original). The polypeptide of claim 7, wherein the lipid is selected from the group consisting of glycerides, glycerophospholipides, glycerophosphinolipids, glycerophosphonolipids, sulfolipids, sphingolipids, phospholipids, isoprenolides, steroids, stearines, sterols, and carbohydrate containing lipids.
- 11 (currently amended). The polypeptide of claim 10, wherein the phospholipid is selected from the group consisting of phosphatidylcholine (PC), phosphatidylserine (PS), and phosphatidylethanolamine (PE), ~~in particular distearoylphosphatidyl (DSPE) or alpha-dipalmitoylphosphatidyl (DPP)~~.
- 12 (currently amended). The polypeptide of claim 7, wherein the lipid is selected from the group consisting of N-caproylamine-PE, N-dodecanylamine-PE, phosphatidylthioethanol, N-[4-(p-maleimidomethyl)cyclohexane-carboxamide-PE (N-MCC-PE), N-[4-(p-maleimidophenyl)butyramide]-PE (N-MPB), N-[3-(2-pyridyldithio)propionate]-PE (N-PDP), N-succinyl-PE, N-glutaryl-PE, N-dodecanyl-PE, N-biotinyl-PE, N-biotinyl-cap-PE, phosphatidyl-(~~ethylene~~ ethylene glycol), PE-polyethylene glycol (PEG)-carboxylic

acid, PE-PEG-maleimide, PE-PEG-PDP, PE-PEG-amine, PE-PEG-biotin, PE-PEG-HNS, dipalmitoyl-glycerolsuccinyl-lysine, alpha-methoxy-omega-(1,2-dioctadecenoyloxy glyceryl) (DO), and alpha-methoxy-omega-(1,2-ditetradecenoyloxy glyceryl) (DT).

13 (currently amended). The polypeptide of claim 7, wherein the second chemical moiety is selected from the group consisting of ~~a drug, a marker, a tag, and a lipid~~ drugs, markers, tags, and lipids.

14 (currently amended). A polynucleotide encoding ~~at least one polypeptide of claims 1 to 5~~ a polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser;

$X_2$  is Arg, Leu, Phe, Pro, or Ser;

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val;

$X_4$  is Gln, Phe, Ser, or Val;

$X_5$  is Arg, Asp, Glu, or Gln;

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val;

$X_7$  is Glu, Phe, Pro, or Val;

$X_8$  is Ala or Cys;

$X_9$  is Asp, Cys, Gln, or His;

$X_{10}$  is Leu, Phe, or Val; and

$X_{11}$  Gln, Phe, Pro, or Val,

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2 amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

15 (original). The polynucleotide of claim 14 which is DNA or RNA.

16 (currently amended). ~~A vector containing the polynucleotide of claim 14 or 15~~

comprising a polynucleotide encoding a polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)

$X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)

$X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser;

$X_2$  is Arg, Leu, Phe, Pro, or Ser;

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val;

$X_4$  is Gln, Phe, Ser, or Val;

$X_5$  is Arg, Asp, Glu, or Gln;

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val;

$X_7$  is Glu, Phe, Pro, or Val;

$X_8$  is Ala or Cys;

$X_9$  is Asp, Cys, Gln, or His;

$X_{10}$  is Leu, Phe, or Val; and

$X_{11}$  Gln, Phe, Pro, or Val,

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2 amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

17 (currently amended). The vector of claim ~~[[10]]16~~, wherein the polynucleotide is operatively linked to expression control sequences allowing expression in prokaryotic and/or eukaryotic host cells.

18 (currently amended). A host cell genetically engineered ~~with the polynucleotide of claim 14 or 15 or the vector of claim 16 or 17~~ to comprise a polynucleotide encoding a polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser;

$X_2$  is Arg, Leu, Phe, Pro, or Ser;

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val;

$X_4$  is Gln, Phe, Ser, or Val;

$X_5$  is Arg, Asp, Glu, or Gln;

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val;

$X_7$  is Glu, Phe, Pro, or Val;

$X_8$  is Ala or Cys;

$X_9$  is Asp, Cys, Gln, or His;

$X_{10}$  is Leu, Phe, or Val; and

$X_{11}$  Gln, Phe, Pro, or Val,

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2 amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

19 (currently amended). A transgenic non-human animal containing ~~a polynucleotide of claim 14 or 15, a vector of claim 16 or 17 and/or a host cell of claim 18~~ a polynucleotide encoding a polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser;

$X_2$  is Arg, Leu, Phe, Pro, or Ser;

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val;

$X_4$  is Gln, Phe, Ser, or Val;

$X_5$  is Arg, Asp, Glu, or Gln;

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val;

$X_7$  is Glu, Phe, Pro, or Val;

$X_8$  is Ala or Cys;

$X_9$  is Asp, Cys, Gln, or His;

$X_{10}$  is Leu, Phe, or Val; and

$X_{11}$  Gln, Phe, Pro, or Val,

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2 amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

20 (currently amended). An antibody ~~that specifically binding to the amino acid sequence within the polypeptides of claims 1 to 13 binds to a polypeptide comprising at least one binding peptide having an amino acid sequence as~~ indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

Y<sub>1</sub> is Cys

Y<sub>2</sub> is Arg

Y<sub>3</sub> is Gly

Y<sub>4</sub> is Asp

X<sub>1</sub> is Ala, Leu, Phe or Ser;

X<sub>2</sub> is Arg, Leu, Phe, Pro, or Ser;

X<sub>3</sub> is Ala, Gly, Leu, Ser, Tyr, or Val;

X<sub>4</sub> is Gln, Phe, Ser, or Val;

X<sub>5</sub> is Arg, Asp, Glu, or Gln;

X<sub>6</sub> is Ala, Gln, Glu, Gly, Phe, or Val;

X<sub>7</sub> is Glu, Phe, Pro, or Val;

X<sub>8</sub> is Ala or Cys;

X<sub>9</sub> is Asp, Cys, Gln, or His;

X<sub>10</sub> is Leu, Phe, or Val; and

X<sub>11</sub> Gln, Phe, Pro, or Val,

wherein X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub>, X<sub>6</sub>, X<sub>7</sub>, X<sub>8</sub>, X<sub>9</sub>, X<sub>10</sub>, X<sub>11</sub>, Y<sub>1</sub>, Y<sub>2</sub>, Y<sub>3</sub>, Y<sub>4</sub> are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2, preferably 1, amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

- 21 (currently amended). A composition comprising at least one ~~polypeptide of one of claims 1 to 13~~ polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I) X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>Y<sub>1</sub>Y<sub>2</sub>Y<sub>3</sub>Y<sub>4</sub>Y<sub>1</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub> or by the general formula (II) X<sub>7</sub>X<sub>8</sub>X<sub>9</sub>Y<sub>1</sub>Y<sub>2</sub>Y<sub>3</sub>Y<sub>4</sub>Y<sub>1</sub>X<sub>10</sub>Y<sub>1</sub>X<sub>11</sub>, wherein

Y<sub>1</sub> is Cys

Y<sub>2</sub> is Arg

Y<sub>3</sub> is Gly

Y<sub>4</sub> is Asp

X<sub>1</sub> is Ala, Leu, Phe or Ser;



X<sub>2</sub> is Arg, Leu, Phe, Pro, or Ser;

X<sub>3</sub> is Ala, Gly, Leu, Ser, Tyr, or Val;

X<sub>4</sub> is Gln, Phe, Ser, or Val;

X<sub>5</sub> is Arg, Asp, Glu, or Gln;

X<sub>6</sub> is Ala, Gln, Glu, Gly, Phe, or Val;

X<sub>7</sub> is Glu, Phe, Pro, or Val;

X<sub>8</sub> is Ala or Cys;

X<sub>9</sub> is Asp, Cys, Gln, or His;

X<sub>10</sub> is Leu, Phe, or Val; and

X<sub>11</sub> Gln, Phe, Pro, or Val,

wherein X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub>, X<sub>6</sub>, X<sub>7</sub>, X<sub>8</sub>, X<sub>9</sub>, X<sub>10</sub>, X<sub>11</sub>, Y<sub>1</sub>, Y<sub>2</sub>, Y<sub>3</sub>, Y<sub>4</sub> are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2; amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus and at least one further component selected from the group consisting of liposomes, virosomes, microspheres, niosomes, dendrimers, stabilizers, buffers, excipients and additives.

22 (currently amended). The composition of claim 21, wherein the polypeptide is integrated into or attached to ~~the liposome, microspheres, niosomes, dendrimers,~~ a liposome, microsphere, niosome, dendrimer, or virosome.

23 (currently amended). The composition of claim 21[[ or 22]], wherein the liposome or virosome comprises ~~lipids~~ a lipid selected from the group consisting of glycerides, glycerophospholipids, glycerophosphinolipids, glycerophosphonolipids, sulfolipids, sphingolipids, phospholipids, isoprenolides, steroids, stearines, sterols, and carbohydrate containing lipids.

24 (currently amended). The composition of ~~one of claims 21 to 23~~ claim 21, wherein the liposome or virosome comprises cholesterol (CH) and sphingomyelin (SM).

- 25 (original). The composition of claim 24, wherein CH and SM are present in relation to the total molar lipid composition of the liposome or virosome at a molar ratio of 40 to 60 mol% and 10 to 20 mol%, respectively.
- 26 (original). The composition of claim 25, wherein CH and SM are present in relation to the total molar lipid composition of the liposome or virosome at a molar ratio of 48 to 52 mol% and 12 to 16 mol%, respectively.
- 27 (currently amended). The composition of ~~one of claims 24 to 26~~ claim 24, further comprising PE and/or PC.
- 28 (original). The composition of claim 27, wherein PE and PC are present in relation to the total molar lipid composition of the liposome or virosome at a molar ratio of 5 to 25 mol% and 15 to 40 mol%, respectively.
- 29 (currently amended). The composition of ~~claims 21 to 28~~ claim 21 further comprising a drug selected from the group consisting of analgesics, antirheumatics, anthelmintics, antiallergics, antianemics, antiarrhythmics, antibiotics, angiogenesis inhibitors, antiinfectives, antidemenics (nootropics), antidiabetics, antidotes, antiemetics, antivertiginosics,, antiepileptics, antihemorrhagics, antihypertotics, antihypotonics, anticoagulants, antimycotics, anititussiv agents, antiviral agents, beta-receptor and calcium channel antagonists, broncholytic and antiastmatic agents, chemokines, cytokines, mitogens, cytostatics, cytotoxic agents and prodrugs thereof, dermatics, hypnotics and sedatives, immunosuppressants, immunostimulants, peptide or protein drugs, ~~in particular hormones and physiological or pharmacological inhibitors of mitogens, chemokines, or cytokines or their respective prodrugs. Of course it is also envisioned that a liposome of the invention comprises more than one drug at once.~~
- 30 (currently amended). The ~~compositions~~ composition of claim 29, wherein the cytostatics and cytotoxic drugs are selected from the group consisting of alkylating substances, anti-metabolites, antibiotics, epothilones, nuclear receptor agonists and antagonists, anti-androgens, anti-estrogens, platinum compounds, hormones and antihormones, interferons and inhibitors of cell cycle-dependent protein kinases (CDKs), inhibitors of

cyclooxygenases and/or lipoxygenases, biogenic fatty acids and fatty acid derivatives, including prostanooids and leukotrienes, inhibitors of protein kinases, inhibitors of protein phosphatases, inhibitors of lipid kinases, platinum coordination complexes, ethyleneimenes, methylmelamines, trazines, vinca alkaloids, pyrimidine analogs, purine analogs, alkylsulfonates, folic acid analogs, anthracendiones, substituted urea, methylhydrazin derivatives, ~~in-particular~~ acediasulfone, aclarubicine, ambazone, aminogluthethimide, L-asparaginase, azathioprine, bleomycin, busulfan, calcium folinate, carboplatin, carpecitabine, carmustine, celecoxib, chlorambucil, cis-platin, cladribine, cyclophosphamide, cytarabine, dacarbazine, dactinomycin, dapsone, daunorubicin, dibrompropamidine, diethylstilbestrol, docetaxel, doxorubicin, enediynes, epirubicin, epothilone B, epothilone D, astramucin phosphate, estrogen, ethinylestradiol, etoposide, flavopiridol, floxuridine, fludarabine, fluorouracil, fluoxymesterone, flutamide, fosfestrol, furazolidone, gemcitabine, gonadotropin releasing hormone analog, hexamethylmelamine, hydroxycarbamide, hydroxymethylnitrofurantoin, hydroxyprogesteronecaproat, hydroxyurea, idarubicin, idoxuridine, ifosfamide, interferon  $\alpha$ , irinotecan, leuprolide, lomustine, lurtotecan, mafenide sulfate, olamide, mechlorethamine, medroxyprogesterone acetate, megastrolacetate, melphalan, mepacrine, mercaptopurine, methotrexate, metronidazole, mitomycin C, mitopodizide, mitotane, mitoxantrone, mithramycin, nalidixic acid, nifuratel, nifuroxazide, nifuralazine, nifurtimox, nimustine, ninorazole, nitrofurantoin, nitrogen mustards, oleomucin, oxolinic acid, pentamidine, pentostatin, phenazopyridine, phthalylsulfathiazole, pipobroman, prednimustine, prednisone, preussin, procarbazine, pyrimethamine, raltitrexed, rapamycin, rofecoxib, rosiglitazone, salazosulfapyridine, scriflavinium chloride, semustine, streptozocine, sulfacarbamide, sulfacetamide, sulfachlopyridazine, sulfadiazine, sulfadiazole, sulfadimethoxine, sulfaethidole, sulfafurazole, sulfaguanidine, sulfaguanole, sulfamethizole, sulfamethoxazole, co-trimoxazole, sulfamethoxydiazine, sulfamethoxypyridazine, sulfamoxole, sulfanilamide, sulfaperin, sulfaphenazole, sulfathiazole, sulfisomidine, staurosporin, tamoxifen, taxol, teniposide, tertiposide, testolactone, testosteronepropionate, thioguanine, thiotepa, tinidazole, topotecan, triaziquone, treosulfan, trimethoprim, trofosfamide, UCN-01, vinblastine, vincristine, vindesine, vinblastine, vinorelbine, and zorubicin, or their respective derivatives or analogs thereof.

31 (currently amended). ~~Use of a polypeptide of one of claims 1 to 13 or of a composition of one of claims 21 to 30 for the production of a medicament for the therapy of proliferative diseases, immune diseases, in particular autoimmune diseases, infectious disease, a vascular diseases, rheumatoid disease, in particular osteoarthritis and rheumatoid arthritis or diseases in which cells in or adjacent a disease site express  $\alpha_v\beta_3$  and/or  $\alpha_v\beta_5$  integrin, and inflammatory diseases~~ A method for the diagnosis or treatment of a proliferative disease, immune disease, autoimmune disease, infectious disease, vascular disease, rheumatoid disease, inflammatory disease or a disease associated with an increase or decrease of the expression of  $\alpha_v\beta_3$  and or  $\alpha_v\beta_5$  integrin, wherein, in the case of treatment, said method comprises administering, to a patient in need of such treatment, a polypeptide comprising at least one binding peptide having an amino acid sequence as indicated by the general formula (I)  $X_1X_2X_3Y_1Y_2Y_3Y_4Y_1X_4X_5X_6$  or by the general formula (II)  $X_7X_8X_9Y_1Y_2Y_3Y_4Y_1X_{10}Y_1X_{11}$ , wherein

$Y_1$  is Cys

$Y_2$  is Arg

$Y_3$  is Gly

$Y_4$  is Asp

$X_1$  is Ala, Leu, Phe or Ser;

$X_2$  is Arg, Leu, Phe, Pro, or Ser;

$X_3$  is Ala, Gly, Leu, Ser, Tyr, or Val;

$X_4$  is Gln, Phe, Ser, or Val;

$X_5$  is Arg, Asp, Glu, or Gln;

$X_6$  is Ala, Gln, Glu, Gly, Phe, or Val;

$X_7$  is Glu, Phe, Pro, or Val;

$X_8$  is Ala or Cys;

$X_9$  is Asp, Cys, Gln, or His;

$X_{10}$  is Leu, Phe, or Val; and

$X_{11}$  Gln, Phe, Pro, or Val.,

wherein  $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, Y_1, Y_2, Y_3, Y_4$  are independently of each other the D or L amino acid or the amino acid residue mimetic of the respectively indicated amino acid;

or said amino acid sequence, which lacks 1 or 2 amino acid(s) from the N-terminus or C-terminus or 1 amino acid from the N- and C-terminus.

32 (currently amended). The ~~[[use]]~~ method of claim 31, wherein the proliferative disease is selected from the group consisting of carcinomas of the gastrointestinal or colorectal tract, liver, pancreas, kidney, bladder, prostate, endometrium, ovary, testes, ~~melanoma, dysplastic oral mucosa, invasive oral cancers, small cell and non-small cell lung carcinomas, hormone-dependent breast cancers, small cell and non-small cell lung carcinomas, hormone-dependent breast cancers, independent breast cancers, transitional and squamous cell cancers, neurological malignancies including neuroblastoma, gliomas, astrocytomas, osteosarcomas, soft tissue sarcomas, hemangiomas, endocrinological tumors, hematologic neoplasias including leukemias, lymphomas, and other myeloproliferative and lymphoproliferative diseases, carcinomas in situ, hyperplastic lesions, adenomas, fibromas, histiocytosis, chronic inflammatory proliferative diseases, vascular proliferative diseases and virus-induced proliferative diseases or testes;~~ melanoma; dysplastic oral mucosa; invasive oral cancers; small cell and non-small cell lung carcinomas; hormone-dependent breast cancers; small cell and non-small cell lung carcinomas; hormone-dependent breast cancers; independent breast cancers; transitional and squamous cell cancers; neurological malignancies; carcinomas in situ; hyperplastic lesions; adenomas; fibromas; histiocytosis; chronic inflammatory proliferative diseases; vascular proliferative diseases and virus-induced proliferative diseases.

33 (canceled).